10
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import pandas as pd
import matplotlib.pyplot as plt
import seaborn as sns
from scipy.cluster.hierarchy import linkage, dendrogram, fcluster
from sklearn.preprocessing import StandardScaler
#Sample data : Replace with real-world data as needed
data = {
    'Country': ['USA', 'Canada', 'Germany', 'France', 'India', 'China', 'Brazil',
                'Russia'],
    'GDP Per Capita': [63000, 46000, 48000, 41000, 2100, 12000, 8800, 11400],
    'Inflation Rate': [2.3, 1.5, 1.4, 1.8, 5.5, 2.1, 4.2, 3.4],
    'Unemployment Rate': [5.2, 6.0, 4.5, 8.0, 7.1, 5.0, 9.8, 4.8] }
df = pd.DataFrame(data)
X = df[['GDP per Capita', 'Inflation Rate', 'Unemployment Rate']]
#Standardize features (important for distance metrics)
scaler = StandardScaler()
X_scaled = scaler.fit_transform(X)
#Perform heirarchical clustering using Ward's method
linked = linkage(X_scaled, method='ward')
#Plot dendrogram
plt.figure(figsize=(10,6))
dendrogram(linked, labels = df['Country'].values, orientation='top',
    distance_sort='descending', show_leaf_counts=True)
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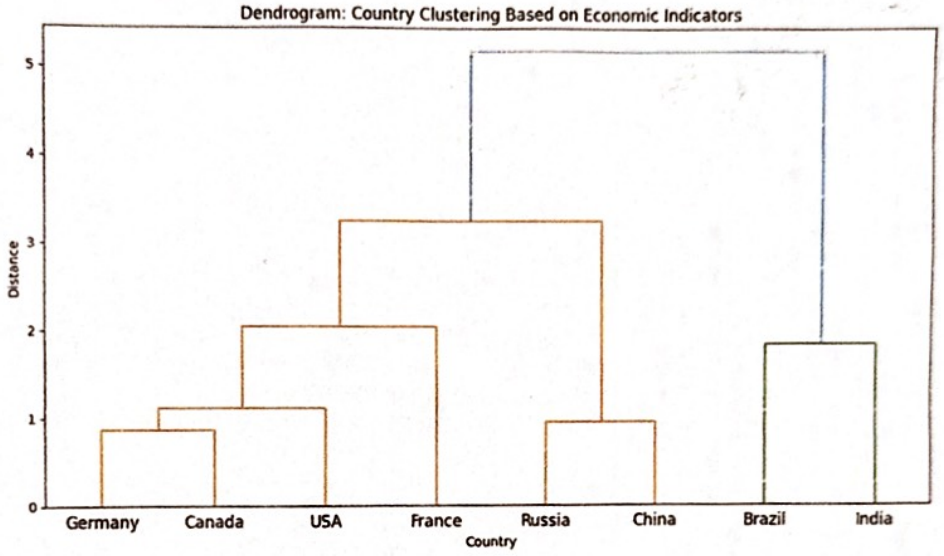
plt.title('Dendrogram : Country clustering Based on Economic Indicators')
plt.xlabel('Country')
plt.ylabel('Euclidean Distance')
plt.tight_layout()
plt.show()

# optional : assign clusters
df['cluster'] = fcluster(linked, t=3, criterion='maxclust')

# Display clustered data
print(df[['Country', 'Cluster']])
```

Output for 10



	Country	Cluster
0	USA	3
1	Canada	3
2	Germany	3
3	France	3
4	India	1
5	China	2
6	Brazil	1
7	Russia	2